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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,037	08/19/2004	Po-Wei Chao	REAP0088USA	5036
27765 7590 02/12/2008 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER BLOOM, NATHAN J	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 02/12/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/711,037

Applicant(s)

CHAO, PO-WEI

Examiner

Nathan Bloom

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 01 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Applicants' response to the last Office Action, filed on November 1st, 2007 has been entered and made of record.

Applicants' amendment had required new grounds of rejection. New grounds of rejection are therefore presented in the Office Action.

Response to Amendment

1. The amendment to claim 14 has fixed the minor informality and thus the objection has been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 21 is rejected under 35 U.S.C. 102(e) as being anticipated by Ji (US 2005/0073607).

Instant claim 21: An intra-field interpolation method for generating a target pixel value, the method comprising:

receiving a plurality of pixel values of an image; [*Ji in paragraph 0010 and figures 1 and 2 teaches the measuring of an edge gradient using a series (plurality) of pixels. Thus it is*

implied that these pixels have been received from an image source of some type, because otherwise there would be no values to operate on.]

generating a first pixel difference set from the received pixel values using a first pixel difference algorithm; *[Ji teaches in figures 2 and 5 and the corresponding description in paragraphs 0054 and 0058 the measurement of the vertical differences (first pixel difference set) between the parallel lines of pixels. This algorithm as taught by Ji creates the vertical difference values and then calculates a mean of these values.]*

calculating differences among a plurality of pixel values of an image line of the image field, to indicate a gradient characteristic of the pixel values of the image line; *[Ji teaches in figures 2 and 4 and the corresponding description in paragraphs 0054 and 0058 the measurement of the horizontal differences between pixels in the same image line (see figure 4). Furthermore, it is common knowledge to one of ordinary skill in the art that a gradient is defined as the change in pixel values in a particular direction. Thus the difference between horizontal pixel values as described by Ji describes the gradient characteristic in the horizontal direction.]*

selecting a plurality of candidate angle according to the first pixel difference set and the gradient characteristic; *[Ji teaches in paragraphs 0058, 0066-0068, 0071-0073, 0078-0080, and 0083-0088 the selection of whether the general direction of the plurality of candidate angles, whether they are more horizontally oriented or more vertically oriented, by comparing the MVD (vertical or "first" difference) with the MHD (horizontal or "gradient characteristic"). Thus Ji teaches selecting a plurality of angles as those defined by the "Line Average" or ELA interpolation method.]*

generating a second pixel difference set from the received pixel values using a second pixel difference algorithm; and *[Ji teaches in figures 2 and 6(A-M) and the corresponding description in paragraphs 0058-0065, 0086, 0100-0108 the generation of pixel correlation (second pixel difference) by (algorithm) differencing corresponding pairs of pixels as is depicted in figures 6A through 6M.]*

blending a plurality of pixel values derived from the received pixel values according to the candidate angles, the first pixel difference set and the second pixel difference set, to generate the target pixel value. *[Ji teaches the selection of the angle by first determining a general orientation (candidate angles, whether they are more horizontally or vertically oriented) using the gradient characteristics and the first pixel differences, and then applies a second set of pixel differences that narrow the angle selection down to the angle corresponding to the pixel pair having the smallest difference (as determined by the second difference set). Then the interpolating unit 240 of figure 3 perform the interpolation (blending) of a plurality of pixel values as described in paragraphs 0100-0108 (example interpolation equations are shown using a plurality of pixel values).]*

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 3-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell (US 6133957) in view of Hahn (US 7092033).

The rejection of claims 1 and 3-20 in the prior office action are maintained in view of the Examiner's "Response to Arguments" below.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell in view of Hahn as applied to claim 1 above, and further in view of De Haan (PCT Pub WO03/038753, also published as US 7206027).

The rejection of claim 2 in the prior office action is maintained in view of the Examiner's "Response to Arguments" below

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ji as applied to claim 21 above, and further in view of Yamashita (US 5347599).

Instant claim 22: An intra-field interpolation method for generating a target pixel value of a target additional pixel, the method comprising:

receiving a plurality of pixel value of an image field; [*See rejection of claim 21.*]

generating a first pixel difference set from the received pixel values using a first pixel difference algorithm; [*See the rejection of claim 21.*]

generating a second pixel difference set from the received pixel values using a second pixel difference algorithm; [See the rejection of claim 21.]

selecting an angle of blending according to the first pixel difference set, the second pixel difference set, and a known angle of blending utilized for obtaining a pixel value of a previous additional pixel processed prior to the target additional pixel; and *[Ji teaches the creation of the difference sets and using these to determine an angle for interpolation, but does not teach the use of a previous angle of interpolation in selecting an angle for interpolation. However, Yamashita teaches a method of interpolation intra-field interpolation (see figure 9 for pixels and pixel to be interpolated). Yamashita, introduces a step in this interpolation process such that if the correlation (differences) between the pixels is such that there is no angle of interpolation that has high correlation then the previous angle of interpolation (selects previous angle of blending). Yamashita teaches this in column 17 lines 1-35. This additional step prevents incorrect angle selection and thus reduces interpolation error (column 2 lines 38-45 of Yamashita). Thus it would have been obvious to one of ordinary skill in the art to combine the teachings of Yamashita and Ji to reduce the interpolation error by using the previous angle if the correlation requirement is not met.]*

obtaining the target pixel value through blending a plurality of pixel values along the angle of blending. [See the rejection of claim 21.]

Response to Arguments

8. Applicant's arguments filed 11/01/2007 have been fully considered but they are not persuasive.

9. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "*In the specification of the instant applications (paragraphs [0032-0042]), the same pixel may be used for more than one time to obtain the desired first and second difference sets.*" "*However, as recited in claim 1, different sets are generated with different algorithms.*" "*Nonetheless, in the instant application, the received pixel values to be blended according to the first pixel difference set and the second pixel difference set resemble interpolation of more than a pair of pixel values.*" "*In the instant application, however, the claimed received pixel values to be blended apply algorithms other than one employed for determining the gradients.*"") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Bloom whose telephone number is 571-272-9321. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed, can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NB



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